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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,123	11/27/2000	Tinku Acharya	INTL-0210-P1-US (P7057X)	5940

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EXAMINER

JOHNSON, TIMOTHY M

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 12/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/723,123

Applicant(s)

ACHARYA ET AL.

Examiner

Timothy M Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on November 7, 10, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 4, 6-7, 10, and 12-15 are rejected under 35 U.S.C. § 102(e) as being anticipated by Zador, 6,125,201.

For claim 1, providing error data that indicate motion in an image is provided by Zador in at least the paragraph bridging cols. 14-15, and the fourth full paragraph in c. 28, with reference to inter-frame compression for motion coding of “delta” frames indicating change between frames provides for the synonymous “error” data. Representing error data as a collection of ordered bits, coding the bits of each order to indicate zerotree roots associated with the order, and in a single pass, embedded zerotree coding of the wavelet transform error image while encoding insignificant wavelet coefficients in the course of initial passes is provided by Zador in at least c. 7, line 31- c. 7, line 63, the paragraph bridging cols. 22-23, the first two full paragraphs in c. 23, fourth full paragraph in c. 24, where the error data is ordered based on at least color and/or luminance, bit depth, and magnitude, and zerotrees are indicated based on this order, where the wavelet zerotree data is insignificant, and is explicitly provided in a single pass, and coding is provided also by entropy coding in at least c. 14, lines 54-60.

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Performing wavelet transformations on the image with error data to provide wavelet coefficients for a wavelet transformed error image is provided by Zador in the fourth full paragraph in c. 28, where the image data can be interframe data between frames providing for delta or error frame data, which can be wavelet transformed by Zador in at least col. 8, lines 60-65, c. 13, lines 21-24, c. 14, lines 30-32, and the paragraph bridging cols. 14-15, where again, the data can be error data from motion video, i.e. interframe.

For claims 4 and 10, wherein providing error data includes taking the difference between two successive image representations in an image sequence is provided by the delta (i.e. difference) interframe data of Zador in at least the paragraph bridging cols. 14-15 and the fourth full paragraph in c. 28.

For claims 6, 12, and 15, including coding the bits based on whether or not the data exceeds a predetermined threshold value is provided by Zador in at least c. 4, lines 56-63.

For claims 7 and 14, see the rejection of at least claim 1.

For claim 13, see the rejection of at least claims 1 and 4, where Zador clearly also provides for a system, and further explicitly recites "system" in at least the paragraph bridging cols. 6-7.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 2-3 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zador, 6,125,201, as applied to claims above, in view of Sodagar et al., 6,157,746.

For claims 2 and 8, determining which of the bits indicate zeros and classifying each zero as either an isolated zero or a zerotree root is not explicitly provided by Zador, but is part of conventional zerotree coding, so that it is at least suggested by Zador. In any case, determining which of the bits indicate zeros and classifying each zero as either an isolated zero or a zerotree root is provided by conventional and well known zerotree coding by Sodagar in at least the third full paragraph in c. 2 and first full paragraph in c. 8, for example. It would've been obvious to one having ordinary skill in the art at the time the invention was made that Zador can provide for isolated zeros, and which bits indicate them, since Zador already provide for zerotree coding, and Sodagar explicitly recites an isolated zero as one of the classifications, and further can be used by Zador, since Sodagar provides for, inter alia, isolated zero(s) to efficiently encode the

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significance map.

For claims 3 and 9, wherein some of the error data are descendants of some of the other error data is clearly indicated where cited above, which is merely the basic hierarchical relationship of wavelet and zerotree coding, where descendants (or "children") is taught throughout Zador and at least where cited above. Determining zeros by traversing a descendant tree from a bit associated with one of the some of the error data to bits associated with the other error data to locate zerotree roots is provided by Zador such as, for example, where cited above with respect to the teaching of zerotree roots by Zador, where zerotree roots are located by determining the descendants of the zerotree root and the zerotree root as zero.

5. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zador, 6,125,201, as applied to claims above, in view of Ogata et al., 5,777,678.

For claims 5 and 11, wherein the taking the difference includes taking the difference of two successive discrete wavelet transform coded frames is not explicitly provided by Zador, but is conventional and well known and is provided by Ogata in at least Fig. 2A, and the fifth full paragraph in c. 7. It would've been obvious to one having ordinary skill in the art at the time the invention was made to take the difference based on successive discrete wavelet transform coded frames, since both use the wavelet transform in video compression, and because the wavelet transform of Ogata does not

deteriorate the video image.

Response to Amendment

6. The title is now descriptive.

7. Applicant's arguments, see pages 6-7, filed November 10, 2003, with respect to the rejection(s) of claim(s) 1-15 under Zandi et al., 6,222,941, in view of Ogata et al., 5,777,678, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Zador, 6,125,201, Sodagar et al., 6,157,746, and Ogata et al., 5,777,678.

Final

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Johnson whose telephone number is (703) 306-3096, or the Supervisory Patent Examiner, Bhavesh M. Mehta, whose telephone number is (703) 308-5246.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703) 305-4700, (703) 305-4750, (703) 305-9600, or (703) 305-3800, or Customer Service at (703) 306-0377.

The Group Art Unit FAX number is 703-872-9306.

Timothy M. Johnson
Patent Examiner
Art Unit 2625
December 19, 2003


TIMOTHY M. JOHNSON
PRIMARY EXAMINER